

# *The Heterodyne*

*Newsletter of the West Valley Amateur Radio Association*

## June Meeting via Zoom

**Working Amateur  
Satellites from your HT  
by Clint Bradford, K6LCS**

**Wednesday, June 9  
Meeting Starts at 7pm  
Visitors Are Welcome!**

***Due to the corona virus, there will not  
be a meeting at American Red Cross.***

**Zoom log-in details are available via the WVARA email reflector or by contacting Jim, K6EI, using the email address on his QRZ page.**

WVARA Repeaters (W6PIY)		
Band	Frequency	PL
6 Meters*	52.580- MHz	151.4 Hz
2 Meters	147.39+ MHz	151.4 Hz
1.25 Meters	223.96- MHz	156.7 Hz
0.70 Meter	441.35+ MHz	88.5 Hz
0.23 Meter	1286.2- MHz	100 Hz

**\* The 6 Meter repeater is currently down**

**WVARA's club net** is on the W6PIY repeaters each Tuesday at 8:30 pm. All repeaters are linked together during the net. The net control script can be found at [www.wvara.org](http://www.wvara.org) in the "On The Air" dropdown.



WVARA's next virtual meeting will be via Zoom at 7pm on June 9. Our speaker will be Clint Bradford, K6LCS. Clint's presentation covers how to work amateur satellites with your HT. You do not need 100W of transmit power nor expensive antenna arrays to work the FM amateur satellites! Many hams already have the necessary equipment to "work the birds." This presentation will walk you through ALL the steps needed to successfully work several ham satellites. (Since this presentation is 90 minutes, we will shorten our meeting's normal introductions to allow more time for the presentation.)

Clint K6LCS has been a ham since 1994, and found his niche in the hobby: working amateur satellites with minimal equipment and telling ALL about it! He has served a

liaison between NASA, the ARISS team, and schools coordinating amateur radio contacts between the International Space Station and students (and orchestrated a wildly successful ARISS contact). Professionally, Clint was sales manager for ADI / Premier Communications / Pryme, worked for a Motorola commercial two-way dealer a couple of years, and for Ham Radio Outlet a couple more. Clint resides in Jurupa Valley, California, with his wife, Karen, and their rescued lab, Freja.

Upcoming Meetings			
June 9	Clint Bradford, K6LCS	Working Amateur Sats from your HT	via Zoom
July	no meeting		
August 21	BBQ in the park	at Baylands Park, Sunnyvale	in person
Sept 8	Teri Grizer, K8MNJ	Grounding/Bonding for RFI Mitigation	likely in person
Oct 13	Rex Vokey, KE6MT	SOTA -- Summits on the Air	likely in person
Nov 10	Steve Sergeamt, KC6ZKT	Winter Field Day Plans	likely in person
Dec 8	no meeting	HOLIDAY PARTY	likely in person

WVARA Net Check-Ins (W6PIY)					
Tuesdays at 8:30 PM					
Call Sign	Name	05/11/21	05/18/21	05/25/21	06/01/21
<b>Total</b>		<b>21</b>	<b>12</b>	<b>21</b>	<b>22</b>
AF6AE	Bill	X		X	
K6EI	Jim	X		X	X
K6LOH	Celeste	X			
K6QFO	Mike	X			
K6VP	Dan		X	X	X
KC6ZKT	Steve	X	X	X	X
KC7XE	Stan				X
KF6EMB	Svend	X			X
KJ6CW	Jim			X	X
KK6HPF	Ross	X	X	X	X
KK6VF	Kevin	NET	NET	NET	NET
KM6IFT	Darco				X
KN6FGH	Tim	X	X	X	X
KN6KC	Eric	X			X
KN6OGS	Ryan	X			
KX6B	Dick	X	X	X	X
N6BTU	Wayne	X		X	X
N6FYR	Matt			X	X
NU6P	John	X	X		
W1MVY	Scott	X	X	X	X
W6BG	Max	X		X	X
W6ESL	Tom	X		X	X
W6IA	Mark	X	X	X	X
W6MNL	Steve			X	X
W6PK	Phil			X	
W8RJL	Ron	X	X	X	X
WB6JHI	Steve			X	
WB6KHP	Dave	X	X	X	X
WR6Z	Dave	X	X	X	X

## WVARA's Field Day 2021 Status

By Jim Peterson, K6EI (WVARA Field Day Coordinator)



As always, Field Day will be the fourth full weekend of June, which this year occurs on June 26-27. Our club has done Field Day from the top of Mora Hill fourteen years in a row. Unfortunately, last year's state and county COVID-19 restrictions forced us to operate in a less centralized way, and that situation is expected to be the case this June as well.

WVARA like last year will conduct Field Day in a decentralized way. All WVARA members are encouraged to participate in Field Day using whatever station category they prefer. Ways that WVARA members can operate Field Day include: Class B - Battery (one or two person portable / Battery), Class C (mobile), Class D (home station, commercial power), and Class E (home station, emergency power). For Field Day 2021, the ARRL has loosened the rules so that Class D stations may work all other Field Day stations, including other Class D stations, for points. Class D and Class E stations will be limited to 150 W PEP output. And don't forget, you don't need to operate CW or SSB in order to participate in Field Day. Last year saw a big jump in the number of Field Day contacts using FT8.

Table 1 lists the various Field Day station categories. Ordinarily, Class D stations can only count contacts made with Class A, B, C, E, and F Field Day stations, but the temporary rule waiver for 2021 allows Class D stations to count contacts with other Class D stations for QSO credit.

FD Station Categories	
Class A	Portable 3+ participants
Class A Battery	Portable 3+ participants, QRP, batteries
Class B	Portable 1 or 2 participants
Class B-Battery	Portable 1 or 2 participants, QRP, batteries
Class C	Mobile
Class D	Home station, commercial power
Class E	Home station, emergency power
Class F	Emergency Ops Center

**Table 1: Field Day Station Categories.**

This year is a golden opportunity to think outside the box. One WVARA member might participate via Class D (home station, commercial power), while another member might participate via Class C (mobile), another via Class E (home station, emergency power), and yet another by pitching a tent in their backyard, tossing a wire over a tree and operating Class B - Battery (one or two person portable / Battery).

Since it is always fun to have a goal to strive for, the ARRL is going to publish a listing of club scores, with each score being the aggregated sum of all individual entries by that club's members. Even though Field Day is not a contest, I'm sure we'd all like to see WVARA achieve a great score. Let's see if we can put WVARA in the Top Ten this year!

Just remember that when you compile your station's final score and submit your Field Day log to the ARRL, be sure to indicate affiliation with our club ("West Valley ARA") so your score can be aggregated into WVARA's club score. And send a copy of your submitted score to me (at [CQFieldDay@gmail.com](mailto:CQFieldDay@gmail.com)) so we can keep a running total of how our club has done.

As always, your score is based on the total number of QSO points times the power multiplier plus bonus points. If running 150 watts or less, your power multiplier is 2 (two). And if your contacts are all made with 5 Watts or less via a power source such as batteries and/or solar cells, your power multiplier is 5 (five) – provided you don't recharge your battery via generator or commercial power source during the event.

Also, don't forget to consider Bonus Points when planning your personal Field Day operation. Table 2 lists some of the various bonus categories that are available to each station class.

Available Bonus Categories	Class A	Class B	Class C	Class D	Class E	Class F
7.3.1 100% Emergency Power	YES	YES	YES	NO	YES	YES
7.3.2 Media Publicity	YES	YES	YES	YES	YES	YES
7.3.3. Public Location	YES	YES	NO	NO	NO	YES
7.3.4. Public Info Table	YES	YES	NO	NO	NO	YES
7.3.5. Message to Section Mgr	YES	YES	YES	YES	YES	YES
7.3.6. Message Handling	YES	YES	YES	YES	YES	YES
7.3.7. Satellite QSO	YES	YES	NO	NO	NO	YES
7.3.8. Alternate Power	YES	YES	YES	NO	YES	YES
7.3.9. W1AW Bulletin	YES	YES	YES	YES	YES	YES
7.3.14 Web submission	YES	YES	YES	YES	YES	YES
7.3.15 Youth participation	YES	NO*	YES	YES	YES	YES

**Table 2: Available Bonus Categories for each Class of Field Day Station**

For example, if I use my home station using a battery as my emergency power source (Class E), I might choose to operate QRP in order to gain the 5x power multiplier along with 100 bonus points for using

100% emergency power (7.3.1). And I might do the following three things to collect an extra 350 bonus points:

- Email a short press-release to a local newspaper or TV/radio station to get 100 bonus points (7.3.2)
- Pre-charge my battery via a solar panel to get 100 bonus points (7.3.8)
- Copy the W1AW bulletin via CW, SSB, or RTTY and get 100 bonus points (7.3.9)
- Submit my Field Day log via the ARRL website for 50 bonus points (7.3.14)

Bottom Line: Field Day this year will still be a great opportunity for us to have fun and increase our emergency preparedness. And as always, the ARRL Field Day web page ( <http://www.arrl.org/field-day> ) contains complete rules and entry forms, as well as any updated information as it becomes available.

***New Members:***  
***The following new members***  
***joined WVARA recently:***  
***Lisa Bickford, K6LIS***  
***Angelica Lanfanconi, KN6NAM***  
***Welcome!!!***

## **WVARA Annual BBQ**





## WVARA Annual BBQ

When: 11am – 12:30pm, Saturday, Aug 21, 2021

Where: Sunnyvale's Baylands Park, Pickleweed Place

(When you get to Baylands Park, turn right after going through the main gate.)



There won't be an evening WVARA meetings in July or August. Instead, we are having our annual WVARA BBQ. Our location (see map below, the reservation is under "WVARA") includes multiple tables, grill, an AC outlet, and a covered awning for shade. There is an entry fee per car at Baylands Park, so you may prefer to carpool. We'll have hot charcoal and condiments — please bring your own meat to grill.

Our BBQ coincides with the SSB portion of the North American QSO Party (NAQP) which means this is an ideal opportunity for a really fun portable radio operation. (NAQP Contest rules are at: <http://www.ncjweb.com/NAQP-Rules.pdf>). We can't put up any big Field Day-style antennas at Baylands, but we can still string up an NVIS dipole and/or put an HF whip on top of the metal awning and have some fun in the contest. Let me know if you are interested in volunteering to be in charge of either of the following two tasks:

- Setting up an HF SSB station.
- Setting up a VHF station for event coordination through the WVARA repeater

– Jim, K6EI

## FT-243 Crystals.

I happen to have an HW-16 – a Heathkit Novice transceiver. It covers 80, 40, and 15 meters, and uses FT-243 crystals instead of a VFO, and has tubes. As soon as I get the new capacitors into it, I will use it on the air, emulating the days of the true Novice operator – 75Watts input, crystal controlled. Oh - yes; ya gotta have crystals.

Now FT-243 crystals aren't hard to find on Ebay, but they sure do cost, and it is not easy to buy crystals for frequencies that you might want. Most crystal manufacturers have closed up shop as regarding amateur crystals in standard holders.

I do happen to have a batch of FT-243 crystals for the various amateur bands, not a lot, but some, so I could use those. I would be truly 'rockbound'. Ahh, the joys of long CQ's and/or answering with long calls using the called station's callsign a lot – so he could find you because you are 'rockbound', too. Any folks in WVARA remember that, besides me?

I happen to have batches of FT-243 crystals on frequencies that we Hams can't use. Some are low enough that I might be able to lap them up to an amateur band. I haven't tried that yet – it will be a painstaking, time intensive job, and that will be a story for another time.

I did stumble upon an item on Ebay a couple months back – a fellow selling a bag of 40 meter HC-49s crystals. I bought a bag of thirteen 40 meter frequencies. You can find him at <https://kc9on.com/ham-radio/crystals/> – and he has other band's are available. I had heard of folks opening up the FT-243 holder, taking out the existing innards, and putting a modern small crystal in. I figured I would try that, and these modified FT-243s would do the trick.

So with the bag of crystals in hand, I dug out a couple of holders that were labeled 7775 KC. Old. Probably WWII era. Like me. Grin.

First: you have to open the holder. On the 2 holders I tried first, 2 of the 3 screws came out easily. I had put a drop of WD-40 on both sides of the holder, over the screw head and the nut and left them for a couple of hours. However, on each holder there was this one screw that wouldn't move. I eventually stripped the head out. Argghhh. I had to drill the head off, and then push the rest out the other side. A true pain in the kiester.

Oh – In case you are interested, the proper replacement is a flathead Phillips machine screw, sized 2 x 56, 3/8 inch long – that was a trial and error determination. I could not find an FT-243 spec that mentioned the machine screws. Well – those specifications that still exist are very very old.



Figure 1: FT-243 and HC-49s Crystals



Figure 2: Disassembled FT-243 Crystal

After getting most of the innards out, you can heat the pins and pull the copper plates off – or – cut the plates off, leaving a stub. I elected to use the stub method, rather than heating the pins and pulling the leads out. I then soldered the leads from the HC-49s crystal onto those stubs. Then I reassembled the crystal holder, marked it with the frequency in MHz, and ran a test. Works fine.



Figure 3: HC-49s soldered in place

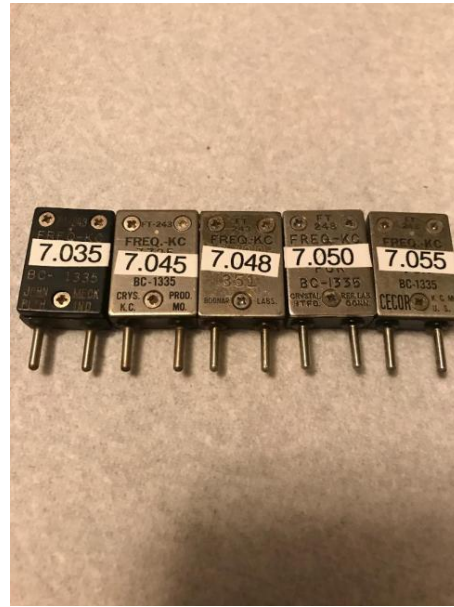


Figure 4: Reassembled and Labeled FT-243

I have the replacement capacitors and resistors for the HW-16 in hand, so I will have to do that job in a while. Then run the smoke test and see what happens. I got the kit from <https://hayseedhamfest.com>, he has kits for many old radios

If all goes well, I will see ya on the air. Hope I get an RST 599X, although I understand that with the HW-16, a RST 599C is a distinct possibility, although there is a mod for that. However, first things first, get on the air.

Carry on.

W6ESL AR Dit Dit.



## **Judy Young, W4JJY, SK**

With great sadness we report the passing  
of WVARA member Judy Young, W4JJY.  
Our deepest condolences to the family.

### **2021 WVARA Board**

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The Heterodyne is published monthly  
by the West Valley Amateur Radio  
Association and sent to all club mem-  
bers via the web. Please obtain per-  
mission from the author to re-publish  
any article in this publication.

Club Web Page: [www.wvara.org](http://www.wvara.org)

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